

means for increasing anger in the character when the character sustains injury;
means for decreasing anger and fear in the character when an opposing
character sustains injury;

means for increasing anger rises and decreasing fear in the character when the
character is unable to inflict injury on an opposing character; and

means for decreasing anger and fear in the character as time lapses.

ab
~~59.~~ (New) The system of claim 56 wherein means for determining a behavior
of a character based on the emotion factor comprises at least one of the following:

means for increasing a hit rate of the character when fear is low;

means for decreasing the hit rate of the character when fear is high;

means for increasing a movement rate of the character when anger is high;

means for inhibiting the character's shooting when fear is high; and

means for increasing a shoot rate of the character when anger is high.--

REMARKS

Claims 1-11, 13-29 are pending in the application. By the present amendment, Applicant amends claims 1-9, 11, 13-15, 18-22, and 25 to more appropriately define the present invention. Claim 12 has been cancelled without prejudice or disclaimer of the subject matter thereof. Applicant has also added new claims 30-59 to cover further aspects of the invention. Claims 1-11 and 13-59 remain pending.

In the Office Action dated July 16, 2002, the Examiner rejected claims 22-24 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the invention; claims 1 and 24 under 35 U.S.C. §102(e) as

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being anticipated by U.S. Patent No. 6,139,433 to Miyamoto et al. (Miyamoto); claims 12 and 13 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,853,324 to Kami et al. (Kami); and claims 2-11, 15, 18, and 21-23 under 35 U.S.C. §103(a) as being unpatentable over Miyamoto in view of Kami. The Examiner objected to claims 14, 16, 17, 19, and 20 as being dependent upon rejected base claims, but would be allowable if rewritten in independent form. Applicant appreciates the Examiner's indication of the allowable subject matter.

Applicant brings to the Examiner's attention a preliminary amendment submitted with the original filing of the application on May 25, 2000, which was not considered in the Office Action. In the preliminary amendment, claim 24 was amended and new claims 25-29 were added. A copy of the preliminary amendment and the associated stamped postcard are enclosed herewith for the Examiner's convenience.

Rejections Under 35 U.S.C. §112, Second Paragraph

In making the various references to the specification and drawings set forth herein, it is to be understood that Applicant is in no way intending to limit the scope of the claims to the exemplary embodiments shown in the drawings and described in the specification. Rather, Applicant expressly affirms that he is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation and applicable case law.

The Examiner rejected claims 22-24 as being indefinite under 35 U.S.C. §112, second paragraph.

Regarding claim 22, Applicant respectfully traverses the rejection because the Examiner failed to establish a *prima facie* case of indefiniteness under §112, second

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paragraph. "In rejecting a claim under the second paragraph of 35 U.S.C. 112, it is incumbent upon the [E]xaminer to establish that one of ordinary skill in the pertinent art, when reading the claims in light of the supporting specification, would not have been able to ascertain with a reasonable degree of precision and particularity the particular area set out and circumscribed by the claims." *Ex parte Wu*, 10 USPQ 2d 2031, 2033 (B.P.A.I 1989). The Examiner asserts in the §112 rejection of claim 22 that it "is unclear as to which object is moving" and apparently makes the assumption that both the "movable object" and the "structural object" cannot simultaneously move. Claim 22 recites, *inter alia*, "a movable object" and "a structural object," and "judging the collision with said movable object while moving said structural object." Applicant respectfully refers the Examiner to at least one part of the specification, where parallel movement (Page 23, first full paragraph; Figs. 24(a)-(b)) and rotational movement (page 23, second full paragraph; Fig. 25) of a structural object are disclosed. Applicant submits that, when read in light of the specification, one of ordinary skill in the art would be able to ascertain the meaning of claim 22. Accordingly, Applicant respectfully requests that the Examiner withdraw the § 112 rejection of claims 22 and 23, as claim 23 depends from claim 22.

Claim 24, as set forth within the preliminary amended described above, was amended to depend from any one of claims 1-11. As such, the limitation "the image generating device" has proper antecedent basis from at least independent claim 1. Therefore, applicant respectfully requests the Examiner to withdraw the §112 rejection of claim 24.

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Rejections Under 35 U.S.C. §102(e)

Claims 1 and 24 are rejected under §102(e) as being anticipated by Miyamoto. Applicant respectfully traverses the rejection of these claims because the Examiner failed to establish a prima facie case of anticipation under §102(e). In order to properly anticipate Applicant's claimed invention under 35 U.S.C. §102(e), each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See M.P.E.P. §2131 (8th Ed., Aug. 2001), quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. §2131 (8th ed. 2001), p. 2100-69.

① [With respect to amended claim 1, Miyamoto fails to disclose at least an "artificial intelligence (AI) processing means for executing AI processing incorporating emotions of the movable body influenced by circumstances, evaluation/determination, and factors of behaviors in said virtual three-dimensional space."

Conversely, Miyamoto merely discloses a processing means whereby a character within a video game system displays a variety of "physical reactions" in response to various external conditions. More specifically, Miyamoto discloses a processing method which varies the animation sequences of a character (Mario) based upon game environment or time (col. 44, line 57 - col. 45, line 9; Fig. 32). As shown in Fig. 32, the different animation sequences merely have a one-to-one relationship with the corresponding environmental condition.

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Miyamoto does not disclose, at least, a means for "incorporating emotions of a movable body influenced by circumstances, evaluation/determination, and factors of behaviors in said virtual three-dimensional space." (emphasis added.) Therefore, Applicant respectfully requests the Examiner to withdraw the § 102(e) rejection of claim 1.

Claim 24 depends from claim 1 and is allowable for at least the same reasons provided above for allowable claim 1. Applicant therefore request the rejection of claim 24 also be withdrawn.

② → Claim 13 is rejected under §102(e) as being anticipated by Kami. Applicant respectfully traverses the rejection of these claims because the Examiner failed to establish a *prima facie* case of anticipation under §102(e).

Kami fails to disclose, as recited in amended claim 13, at least a "path of the at least one bullet deviat[ing] from the position of the player until a predetermined condition is met."

Conversely, Kami merely discloses a shooting game machine wherein a player pulls a trigger of a gun to shoot at targets contained in images shown on a display. The game detects a supposed impact position and, if the impact position is coincident with the position of the target, the machine determines an imaginary bullet has hit the target (col. 6, lines 14-20). More specifically, Kami discloses three scenes in which a bullet shot by an enemy misses, grazes, and hits the virtual player (col. 10, lines 27-53; Figs. 8A-C). The attack ability of enemies are based upon a hit rate which is based on a measurement of a timing system (col. 11, lines 26-35).

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Kami does not disclose at least the "path of the at least one bullet deviat[ing] from the position of the player until a predetermined condition is met." (emphasis added). Accordingly, Applicant respectfully requests the Examiner to withdraw the §102(e) rejection of claim 13.

Claim 25 depends from allowable claim 13 and this therefore allowable due to its dependency.

Rejections Under 35 U.S.C. §103(a)

Claims 2-11, 15, 18, and 21-23 are rejected under §103(a) as being obvious over Miyamoto in view of Kami. Applicant submits the Examiner has failed to establish a *prima facie* case of obviousness. In order to maintain a valid §103(a) rejection, each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. (See M.P.E.P. §2143.03 (8th ed. 2001).) Second, there must be some suggestion or motivation, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of these requirements must "be found in the prior art, and not be based on Applicant's disclosure." (M.P.E.P. § 2143 (8th ed. 2001).)

Regarding claims 2 and 15, Miyamoto and Kami, separately or in combination, fail to teach or suggest at least an "artificial intelligence (AI) processing means for executing AI processing incorporating emotions of said character influenced by circumstances, evaluation/determination, and factors of behaviors in said game."

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As discussed above for claim 1, Miyamoto discloses a processing means whereby a character within a video game system displays a variety of "physical reactions" in response various external conditions. Furthermore, Kami is silent with respect to "incorporating emotions of a movable body" and fails to cure the deficiencies of Miyamoto.

As neither Miyamoto or Kami, separately or in combination, teach or suggest at least "executing AI processing incorporating emotions of the movable body influenced by circumstances, evaluation/determination, and factors of behaviors in said virtual three-dimensional space," (emphasis added), Applicant respectfully requests that the Examiner withdraw the §103(a) rejection of claims 2 and 15. Applicant further submits that claims 3-11 are patentable over Miyamoto and Kami at least in view of their dependence from claim 2, and therefore requests that the Examiner withdraws the §103(a) rejection.

Claim 26 depends from allowable claim 15 and this therefore allowable due to its dependency.

(H) → Regarding claim 18, Miyamoto and Kami, separately or in combination, fail to teach or suggest at least an "specifying a subpart on a terminal side and a main part on a central side with respect to two adjacent parts among said plurality of parts[.]"

Miyamoto merely discloses the process whereby a sequence of movements which may be performed by a character (Mario) result from the actuation of a combination of controller inputs (col. 39, line 58 - col. 40, line 25; Figs. 27A-B).

Furthermore, Kami is silent with respect to "a terminal side and a main part on a central

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side with respect to two adjacent parts among said plurality of parts[,]” and fails to cure the deficiencies of Miyamoto.

Accordingly, Applicant respectfully requests the Examiner to withdraw the §103(a) rejection of claim 18.

Claim 27 depends from allowable claim 18 and this therefore allowable due to its dependency.

Regarding claim 21, Miyamoto and Kami, separately or in combination, fail to teach or suggest at least an “interpolation means for performing motion interpolation based on the operational results of said operating means.”

Miyamoto merely discloses various movements of a character based upon corresponding controller inputs as described above for claim 18. Kami is silent with respect to an “interpolation means for performing motion interpolation. . . .”

Accordingly, Applicant respectfully requests the Examiner to withdraw the §103(a) rejection of claim 21.

Claim 28 depends from claim 21 and is allowable for at least the same reasons provided above for allowable claim 21.

Regarding claim 22, Miyamoto and Kami, separately or in combination, fail to teach or suggest at least “a collision judgment means for judging the collision with said movable object while moving said structural object, wherein a coordinate, being fixed on a collision surface of the structural object while moving, is described in a coordinate system associated with the structural object, and based on said coordinate, the collision is determined.”

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Miyamoto merely discloses a collision determination routine which judges a collision between a moving object (Mario) and a structural object based on determining distances between points described in a single coordinate system (col. 32, lines 13-52; Fig. 19B). Furthermore, Kami is silent with respect to collision judgment means.

Accordingly, Applicant respectfully requests the Examiner to withdraw the §103(a) rejection of claim 22.

Claim 23 depends from claim 22 and is allowable for at least the same reasons provided above for allowable claim 22. Applicant therefore requests the Examiner to withdraw the §103(a) rejection of claim 22.

Claim 29 depends from allowable claim 22 and this therefore allowable due to its dependency.

Applicant respectfully requests the Examiner to withdraw the objections to claims 14, 16, 17, 19, and 20, as being dependent upon rejected base claims, since claim 14 depends from allowable claim 13; claims 16 and 17 depend from allowable claim 15; and claims 19 and 20 depend from allowable claim 18.

Applicant further submits that each of new claims 30-59 recites features not found in either of Miyamoto or Kami. As a result, claims 30-59 are patentable and their allowance is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims.

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Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: December 16, 2002

By: 

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APPENDIX

Additions to text are shown in underline font type and deletions of text are shown in ~~strikethrough~~ font type.

1. (Amended) An image generating device for generating images capturing a movable ~~object~~ body moving within a virtual three-dimensional space from a ~~movable~~ viewpoint of a camera in said virtual three-dimensional space, comprising:

movement means for controlling the movement of said camera viewpoint ~~upon~~ utilizing based on the a position relationship between ~~the an~~ observable point set in relation to said movable body and ~~the a~~ line of sight of ~~the a~~ current camera viewpoint; and

artificial intelligence (AI) processing means for executing AI processing incorporating emotions of the movable body influenced by circumstances, evaluation/determination, and factors of behaviors in said virtual three-dimensional space.

2. (Amended) An image generating device according to claim 1, wherein said virtual three-dimensional space is a game space, and said movable body is an enemy in a gun shooting game ~~enacting~~ within said game space.

3. (Amended) An image generating device according to claim 2, further comprising:

display means for displaying said game space on a screen;

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a gun unit capable of producing signals ~~toward~~ on said screen ~~by~~ when ~~the~~ a player manipulates ~~ing~~ at the trigger;

a sensor for detecting ~~the~~ an arrival position of said signals on the screen of said display means; and

game implementing means for implementing a gun shooting game between said enemy and said player based on said arrival position.

4. (Amended) An image generating device according to claim 3, ~~wherein the position of said observable point is at a different position than that of said movable body,~~ further comprising:

observable point moving means for moving ~~this~~ said observable point toward said movable body for each display of one frame of said image, wherein a position of said observable point is at a different position than that of said movable body.

5. (Amended) An image generating device according to claim 4, wherein said observable point moving means comprises: ~~is means for~~

means for moving said observable point toward said movable body in prescribed distances, for each display of one frame of said image, ~~and along the~~ a straight line ~~distance connecting said observable point and the position of said movable object, said observable point toward said movable object side in prescribed distances of the direct distance thereof.~~

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6. (Amended) An image generating device according to claim 4, wherein said observable point moving means comprises:

means for operating ~~the~~an open angle between ~~the~~a current line of sight ~~extending from said~~of said camera viewpoint and ~~the~~a line extending from the camera position ~~viewpoint~~ through said observable point;

means for operating a ~~prescribed~~ rotational angle ~~from such~~based on the open angle; and

means for rotating, for each display of one frame of said image, the current line of sight of said camera viewpoint toward said observable point ~~side at~~by said rotational angle.

7. (Amended) An image generating device according to claim 3, wherein said movementing means comprises:

judging means for judging the occurrence of specific circumstances of the relative position relationship between said camera viewpoint, which changes in accordance with manipulations of said player, and said observable point; and

viewpoint movement control means for controlling the position of said camera viewpoint ~~so as to~~ continuously capture the position of said observable point.

8. (Amended) An image generating device according to claim 7, wherein said viewpoint movement control means comprises:

means for moving ~~is means for performing position control pursuant to motion-~~
~~movement for moving said camera viewpoint;~~ and

~~means for rotating~~~~ional movement~~ said camera viewpoint in accordance with
~~the~~based on an angle formed by the direction toward~~between a line extending from said~~
camera position through ~~said observable point from the position of the camera viewpoint~~
~~after said movement of said camera and at the line extending from line of sight directions~~
~~of said camera position viewpoint through said observable point before said movement~~
of said camera.

9. (Amended) An image generating device according to claim 8, wherein
means for rotating said camera viewpoint ~~said viewpoint movement control means~~
~~includes viewpoint rotation means for rotating~~ rotates ~~said camera viewpoint toward~~
~~said observable point side in accordance with~~ based on ~~said angle.~~

11. (Amended) An image generating device according to claim 9, further
comprising:

avoidance manipulation means for ~~a~~ said player to manipulate ~~the~~ a character,
which is a simulation of ~~such~~ said player on a screen, to avoid ~~at the~~ bullet fired from said
enemy₁; wherein said judging means ~~is means for judging~~ determines whether said
avoidance manipulation means is in a manipulative state ~~or not.~~

13. (Amended) ~~An image generating device according to claim 12, wherein~~
~~said image display is~~ An image generating device for generating images allowing a
player to play a gun shooting game with an enemy character existing in a virtual game
space, comprising:

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image processing means for providing images suggesting to the player in advance an impending attack by said enemy character on said player, wherein the images include at least one image a display of at least one bullet fired from by said enemy character and flying having a path toward said player in the actual-virtual game space, and further wherein the path of the at least one bullet deviates from the position of the player until a predetermined condition is met.

14. (Amended) An image generating device according to claim 13, wherein the ~~display image~~ of said at least one bullet is ~~a display~~ an image of the at least one bullet flying in an arc.

15. (Amended) An image generating device for displaying on a display images for a player to play a gun shooting game with an enemy character existing in a virtual game space, said image generating device comprising:

artificial intelligence (AI) [AI] processing means for executing AI processing incorporating emotions of said character influenced [between] by circumstances, evaluation/determination, and factors of behaviors in said game.

18. (Amended) An image generating device for generating images by representing a movable object simulating a person and moving inside a virtual three-dimensional space as a plurality of parts connected via connection points, said image generating device comprising:

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first specifying means for specifying a subpart on ~~the~~a terminal side and a main part on ~~the~~a central side with respect to two adjacent parts among said plurality of parts;

first operating means for operating ~~the~~an impulse of the subpart motion communicated to the main part under ~~the~~a presumption that the connection point of said subpart to said main part is a fixed point;

first repeating means for repeating, in a recurring manner, the movements of said first specifying means and said first operating means from the terminal side of said movable object to the central side thereof;

second specifying means for specifying a main part on the central side and a subpart on the terminal side with respect to two adjacent parts among said plurality of parts;

second operating means for operating ~~the~~an impulse of the main part motion communicated to the subpart; and

second repeating means for repeating, in a recurring manner, the movements of said second specifying means and said second operating means from the central side of said moveable object to the terminal side thereof.

19. (Amended) An image generating device according to claim 18, wherein at least one of said first and second operating means ~~is~~comprises means for executing seasoning-like operational processing upon simulating said person.

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20. (Amended) An image generating device according to claim 19, wherein said seasoning-like operational processing includes at least one of the, ~~or a plurality of~~ operations among:

an operation for applying a reverse moment to at least one part of the plurality of parts, which is caused pursuant to at least one restriction on movement of at least one joints of said person, ~~to said parts~~;

an operation for reflecting ~~the~~ an external force inflicted on said person to ~~said~~ at least one part of the plurality of parts;

an operation for correcting ~~the~~ an unnaturalness of ~~at the~~ position of at least one part of the plurality of parts ~~said parts~~ caused pursuant to differences in calculations;

an operation for applying ~~the~~ an internal force moment caused by at least one physical characteristics of said person to at least one part of the plurality of parts ~~said parts~~; and

~~control~~ an operation for controlling ~~of the~~ a rotation or movement speed of at least one part of the plurality of parts ~~said parts~~ for reflecting expressions caused by ~~the~~ a mentality of said person to ~~said~~ at least one part of the plurality of parts.

21. (Amended) An image generating device for generating image data which interpolates ~~the~~ motion between two types of motions of ~~the~~ a movable object moving within a virtual three-dimensional space; comprising:

operating means for discretely operating ~~the~~ a function curve of the motion between said two types of motions pursuant to ~~the~~ a current rotational angle, target

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rotational angle, and a number of frames required to reach the target rotational angle;
and

interpolation means for performing motion interpolation based on the operational results of said operating means.

22. (Amended) An image generating device for generating images requiring ~~the~~ a collision judgment between a movable object moving within a virtual three-dimensional space and a structural object arranged in said space, comprising:

a collision judgment means for judging the collision with said movable object while moving said structural object-, wherein a coordinate, being fixed on a collision surface of the structural object while moving, is described in a coordinate system associated with the structural object, and based on said coordinate, the collision is determined.

25. (Amended) A storage medium storing a program for executing functions of the image processing means of the image generating device of any one of claims ~~12~~ 13-14.